REMARKS

Claims 1–20 are pending in the present application.

Claim 5 was objected to as being dependent upon a rejected base claim, but was indicated to be allowable if rewritten in independent form including all limitations of the base claim and any intervening claims.

Reconsideration of the claims is respectfully requested.

35 U.S.C. § 102 (Anticipation)

Claims 1–4 and 18–19 were rejected under 35 U.S.C. § 102(e) as being anticipated by U.S. Patent No. 5,625,876 to *Gilhousen et al.* This rejection is respectfully traversed.

A claim is anticipated only if each and every element is found, either expressly or inherently described, in a single prior art reference. The identical invention must be shown in as complete detail as is contained in the claim. MPEP § 2131 at p. 2100-73 (8th ed. rev. 2 May 2004).

Independent claims 1 and 18 each recite that first and second successive data signals from first and second subscriber stations, and subsequent data signals, if any, are alternately applied to first and second demodulators. In an exemplary embodiment of the invention, two modems are alternately employed to demodulate separate, successive uplink bursts from different subscriber stations, so that one modem is utilized to demodulate a received data burst while the second, currently unused modem is configured using profiles values associated with the next subsequent data

burst expected to be received, to avoid delay in demodulation and increase overall throughput. Such a feature is not found in the cited reference.

The final Office Action states:

> Gilhousen et al shows discloses [sic] a basestation receiver that uses multiple modulation and demodulation elements (fig 3). He also shows in figure 3 that each demodulation element will decode a different uplink message which is later combined for decoding. In figure 1 Gilhousenn [sic] et al shows that the base station can receive signals from multiple subscribers. Moreover, Gilhousenn et al states that "demodulation elements 204A-204N are controlled by controller 200 through interconnection 212." (Column 10, lines 3-5) Gilhousenn states that his base station uses "at least one searcher element...**The searcher element identifies a set of available signals and passes the information to the controller. The controller may use the set of available signals to assign or re-assign the demodulation elements to the most advantageous signals available." (Column 10, lines 24-38)** Therefor the controller uses the search as a form of feedback for choosing one of the demodulation elements.
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> Regard Claim 18, the limitation "successive data signals and any subsequent data signals are alternately applied to the first and second demodulators;" is shown in figure 2, where three messages are selectively demodulated by three different demodulators.

Paper No. 05092005, page 2 (emphasis in original). However, *Gilhousen et al* does not, as asserted in the final Office Action, teach use of the demodulation element in Figure 3 to demodulate different uplink messages which are later combined for decoding. Instead, the combination in *Gilhousen et al* is of the same data signals concurrently detected in multiple sectors:

> The combination process in softer handoff allows demodulated data from different sectors to be combined before decoding and thus produce a single soft decision output value. The combination process can be performed based on the relative signal level of each signal thus providing the most reliable combination process.

> Combining signals from sectors of a common base station also allows a sectorized base station to make a single power adjustment command for mobile unit power control. Thus the power adjustment command from each sector of a common base station is the same. This uniformity in power control allows flexible handoff operation in that sector diversity at the mobile unit is not critical to the power control process.

Gilhousen et al, column 5, lines 35–48. *Gilhousen et al* teaches that the same combination of demodulated data prior to decoding may be performed for either separate base stations, or for different sectors associated with a single base station:

> For each mobile unit operating in soft handoff in the system, the cellular or personal communication system controller receives decoded data from at least two base stations. For example, in FIG. 1 the cellular or personal communications system controller would receive decoded data from mobile unit 30 from base stations 40, 100, and 110. Combining the decoded data does not yield the great advantage of combining the data prior to decoding. A typical cellular or personal communication system controller may choose not to combine the decoded data from each base station and instead select the decoded data from the base station having the highest signal quality index and discard the data from any other base station.
>
> The method of soft handoff could be directly applied to a sectorized base station by treating each sector of a common base station as a separate, independent base station. Each sector of the base station could combine and decode multipath signals from a common mobile unit. The decoded data could be sent directly to the cellular or personal communication system controller by each sector of the base station or it could be compared and selected at the base station and the result sent to the cellular or personal communication system controller.

Gilhousen et al, column 7, lines 7–29. In applying the combination to sectors in a first embodiment, *Gilhousen et al* recognizes that the same signal from a single mobile unit may arrive concurrently at more than one of the three different antennas 310, 326 and 344 each serving different but overlapping sectors for the base station:

> In FIG. 2, each of antennas 310, 326, and 344 is the receive antenna for one sector of a common base station. FIG. 2 represents a typical sectorized base station in that antennas 310, 326, and 344 have overlapping coverage areas such that a single mobile unit signal may be present at more than one antenna at a time.

Gilhousen et al, column 7, lines 32–37. Thus, during operation other than soft handoff, the three sets of N demodulation elements 316A-316N, 332A-332N and 350A-350N corresponding to the three different antennas 310, 326 and 344 depicted in Figure 2 of *Gilhousen et al* each operate, under the control of separate controllers 318, 334 and 352, respectively, on a message (Message 1, Message 2 and Message 3, respectively) from different mobile units:

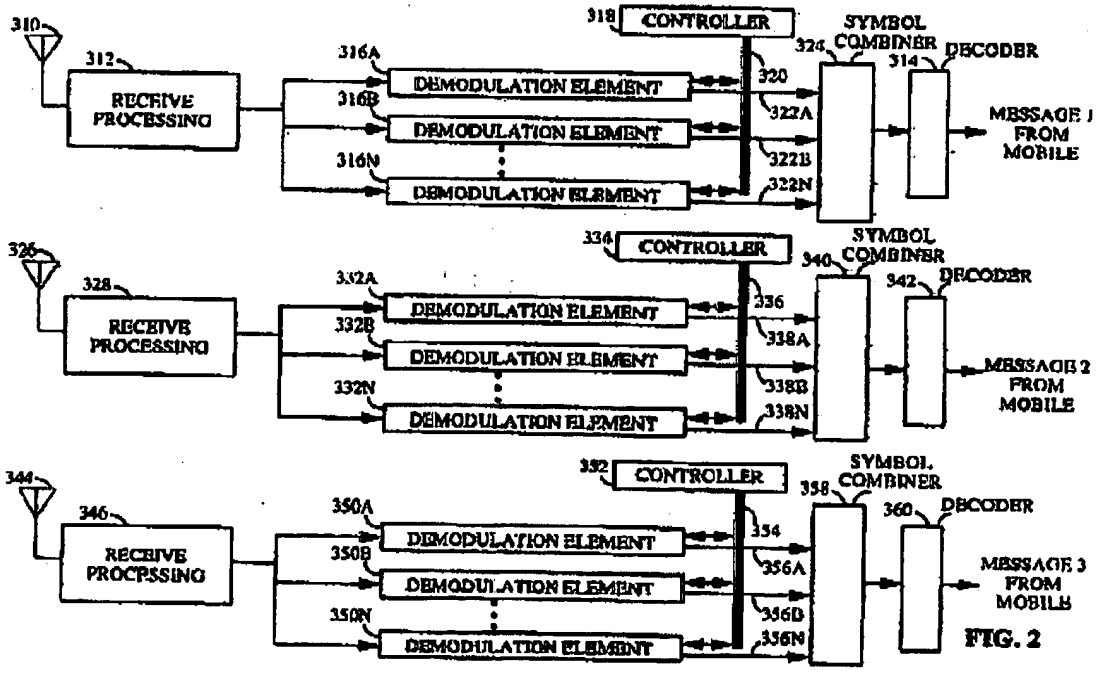

FIG. 2

Antennas 310, 326, and 344 supply a receive signal to receive processings 312, 328, and 346 respectively. Receive processings 312, 328, and 346 process the RF signal and convert the signal to digital bits. Receive processings 312, 328, and 346 may also filter the digital bits. Receive processing 312 provides the filtered digital bits to demodulation elements 316A-316N. Receive processing 328 provides the filtered digital bits to demodulation elements 332A-332N. Likewise, receive processing 346 provides the filtered digital bits to demodulation elements 350A-350N.

Demodulation elements 316A-316N are controlled by controller 318 through interconnection 320. Controller 318 assigns demodulation elements 316A-316N to one of the plurality of information signals from a single mobile unit. Demodulation elements 316A-316N produce data bits 322A-322N that are combined in symbol combiner 324. The output of symbol combiner 324 may be aggregate soft decision data suitable for Viterbi decoding. The combined data is decoded by decoder 314 and output Message 1 from the mobile unit is passed to the cellular or personal communications system controller.

. . . .

Demodulation elements 332A-332N are controlled by controller 334 through interconnection 336. Controller 334 assigns demodulation elements 332A-332N to one of the plurality of information signals from a single mobile unit. Demodulation elements 332A-332N produce data bits 338A-338N that are combined in symbol combiner 340. The output of symbol combiner 340 may be aggregate soft decision data suitable for Viterbi decoding. The combined data is decoded by decoder 342 and output Message 2 from the mobile unit is passed to the cellular or personal communications system controller.

. . . .

Demodulation elements 350A-350N are controlled by controller 352 through interconnection 354. Controller 352 assigns demodulation elements 350A-350N to one of the plurality of information signals from a single mobile unit from the corresponding sector. Demodulation elements 350A-350N produce data bits 356A-356N that are combined in symbol combiner 352. The output of symbol combiner may be aggregate soft decision data suitable for Viterbi decoding. The combined data is decoded by decoder 360 and the output Message 3 from the mobile unit is passed to the cellular or personal communications system controller.

Gilhousen et al, Figure 2, column 7, lines 38–59, column 7, line 66 through column 8, line 9, column 8, lines 16–27 (emphasis added). Each set of demodulation elements thus operates on successive

information signals from a **single** mobile unit, NOT from different mobile units. *Gilhousen et al* does not teach or suggest that a set of demodulation elements operates on successive information signals from **different** mobile units, only on successive information signals from a single mobile unit. In fact, *Gilhousen et al* does not even teach or suggest that the information signals received from different mobile units (i.e., those corresponding to Message 1, Message 2, and Message 3) are successive (i.e., occurring in succession) rather than concurrent.

In the second embodiment disclosed in *Gilhousen et al* – that corresponding to the portions cited in the above quote from the final Office Action – sector antennas 222A-222C are coupled to demodulation elements 204A-204N:

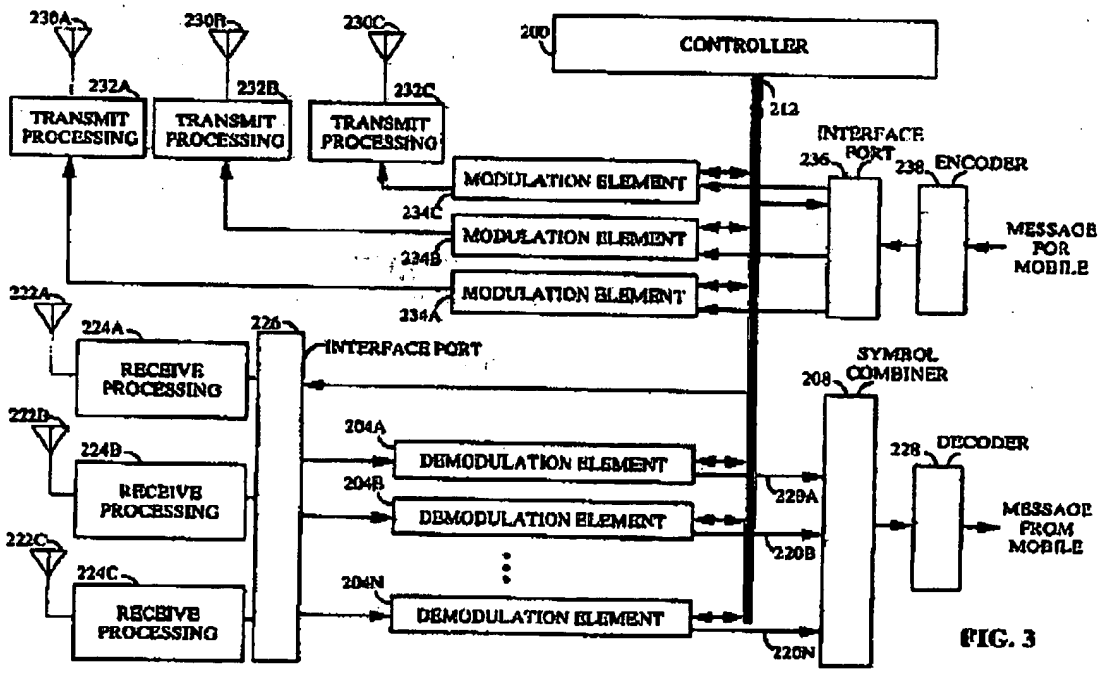

FIG. 3

Gilhousen et al, Figure 3, column 9, line 52 through column 10, line 2. In this embodiment, however, *Gilhousen et al* once again teaches that only successive information signals from a single mobile unit are applied to separate demodulators, not successive information signals from different mobile units:

> Continuing in with the preferred embodiment, demodulation elements 204A-204N are controlled by controller 200 through interconnection 212. Controller 200 assigns demodulation elements 204A-204N to one of the plurality of information signals from a single mobile unit from any one of the sectors. Demodulation elements 204A-204N produce data bits 220A-220N each representing an estimate of the data from the single mobile unit. Data bits 220A-220N are combined in symbol combiner 208 to produce a single estimate of the data from the mobile unit. The output of symbol combiner 208 may be aggregate soft decision data suitable for Viterbi decoding. The combined symbols are passed to decoder 228.
>
> Demodulation elements 204A-204N also provide several output control signals to controller 200 through interconnection 212. The information passed to controller 200 includes an estimate of the signal strength of the signal assigned to a particular demodulator. Each one of demodulation elements 204A-204N measures a signal strength estimation of the signal that it is demodulating and provides the estimation to controller 200.
>
> In many applications, an actual base station also comprises at least one searcher element. The searcher element is also capable of demodulating a signal and is used to continually scan the time domain in search of available signals. The searcher element identifies a set of available signals and passes the information to the controller. The controller may use the set of available signals to assign or re-assign the demodulation elements to the most advantageous signals available. The placement of the searcher element is the same as the placement of the demodulating elements in FIG. 2. As such the searcher elements may also be assigned to a signal from a plurality of sectors of a common base station. In the most general case, demodulation elements 204A-204N can be assumed to comprise some elements that are capable of performing the searching function.
>
> Notice that symbol combiner 208 can combine signals from just one sector to produce an output or it can combine symbols from multiple sectors as selected by the interface port 226. A single power control command is created by the controller from the estimated signal strengths independent of the sector through which the

> signal is received. The controller can pass this information to the transmit circuitry of each sector of the base station. Thus each sector in the base station transmits the same power control information to a single mobile unit.
>
> When symbol combiner 208 is combining signal from a mobile unit that is communicating through more than one sector, the mobile unit is in softer handoff. The base station may send the output of decoder 228 to a cellular of personal communication system controller. At the cellular or personal communication system controller, signal from this base station and from other base stations are used produce a single output (soft handoff.)

Gilhousen et al, column 10, lines 3–56 (emphasis added). In the case of the "softer" handoff in which signals from multiple antennas serving overlapping sectors are combined for decoding, the signals combined are not successive signals, but the same signal received at two different antennas.

In sum, *Gilhousen et al* does not teach receiving successive signals from two different subscriber units, and does not teach applying such successive signals alternately to first and second modulators.

Therefore, the rejection of claims 1–4 and 18–19 under 35 U.S.C. § 102 has been overcome.

35 U.S.C. § 103 (Obviousness)

Claim 6 was rejected under 35 U.S.C. § 103(a) as being unpatentable over *Gilhousen et al* in view of U.S. Patent Application Publication No. 2001/0018326 to *Link, II*. Claims 7, 15 and 20 were rejected under 35 U.S.C. § 103(a) as being unpatentable over *Gilhousen et al* in view of U.S. Patent No. 6,272,333 to *Smith*. Claims 8–10 were rejected under 35 U.S.C. § 103(a) as being unpatentable over *Gilhousen et al* in view of *Smith* and further in view of U.S. Patent No. 5,940,454 to *McNicol*. Claims 11–14 were rejected under 35 U.S.C. § 103(a) as being unpatentable over

Gilhousen et al in view of *Smith* and further in view of U.S. Patent Application Publication No. 2002/0036985 to *Jonas et al.* Claims 16–17 were rejected under 35 U.S.C. § 103(a) as being unpatentable over *Gilhousen et al* in view of *Smith* and further in view of U.S. Patent No. 6,131,016 to *Greenstein et al.* These rejections are respectfully traversed.

In *ex parte* examination of patent applications, the Patent Office bears the burden of establishing a *prima facie* case of obviousness. MPEP § 2142, p. 2100-128 (8th ed. rev. 2 May 2004). Absent such a *prima facie* case, the applicant is under no obligation to produce evidence of nonobviousness. *Id.*

To establish a *prima facie* case of obviousness, three basic criteria must be met: First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on applicant's disclosure. *Id.*

As noted above, independent claims 1 and 18 each recite one or more limitation(s) not found in *Gilhousen et al.* Such limitation(s) are also not found in the other cited references.

Therefore, the rejection of claim 6–17 and 20 under 35 U.S.C. § 103 has been overcome.

If any issues arise, or if the Examiner has any suggestions for expediting allowance of this Application, the Applicant respectfully invites the Examiner to contact the undersigned at the telephone number indicated below or at *dvenglarik@davismunck.com*.

The Commissioner is hereby authorized to charge any additional fees connected with this communication or credit any overpayment to Deposit Account No. 50-0208.

Respectfully submitted,

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Date: 7-13-05

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